

# Introduction: Studying Lifespan Development

## Chapter 1



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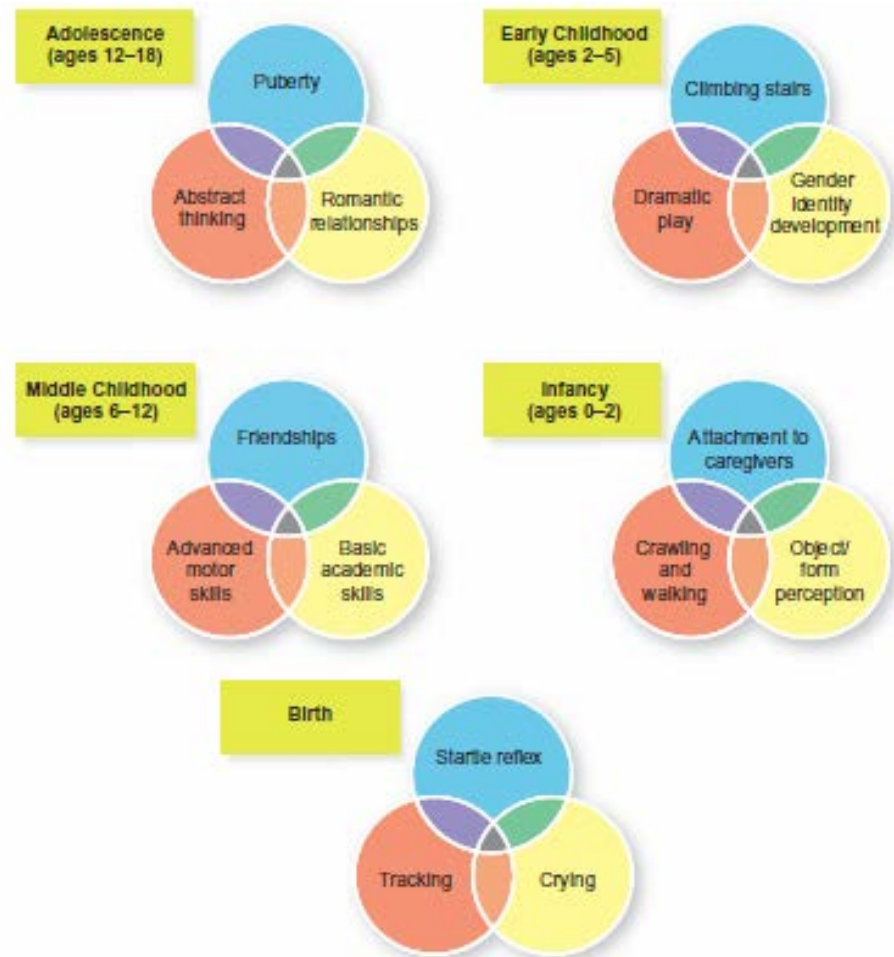
# Focusing Questions

- ▶ What in general is lifespan development?
- ▶ Why is it important to know about development?
- ▶ How has society's view of childhood changed over time?
- ▶ What general issues are important in human development?
- ▶ How do developmental psychologists go about studying development from conception to adolescence?
- ▶ What ethical considerations should guide the study of child and adolescent development?

# Lifespan Development

- ▶ Conception to death
- ▶ How we change and stay the same in different domains
  - Physically
  - Cognitively
  - Psychosocially
- ▶ How nature and nurture interact with one another in different contexts

# Domains Impact One Another



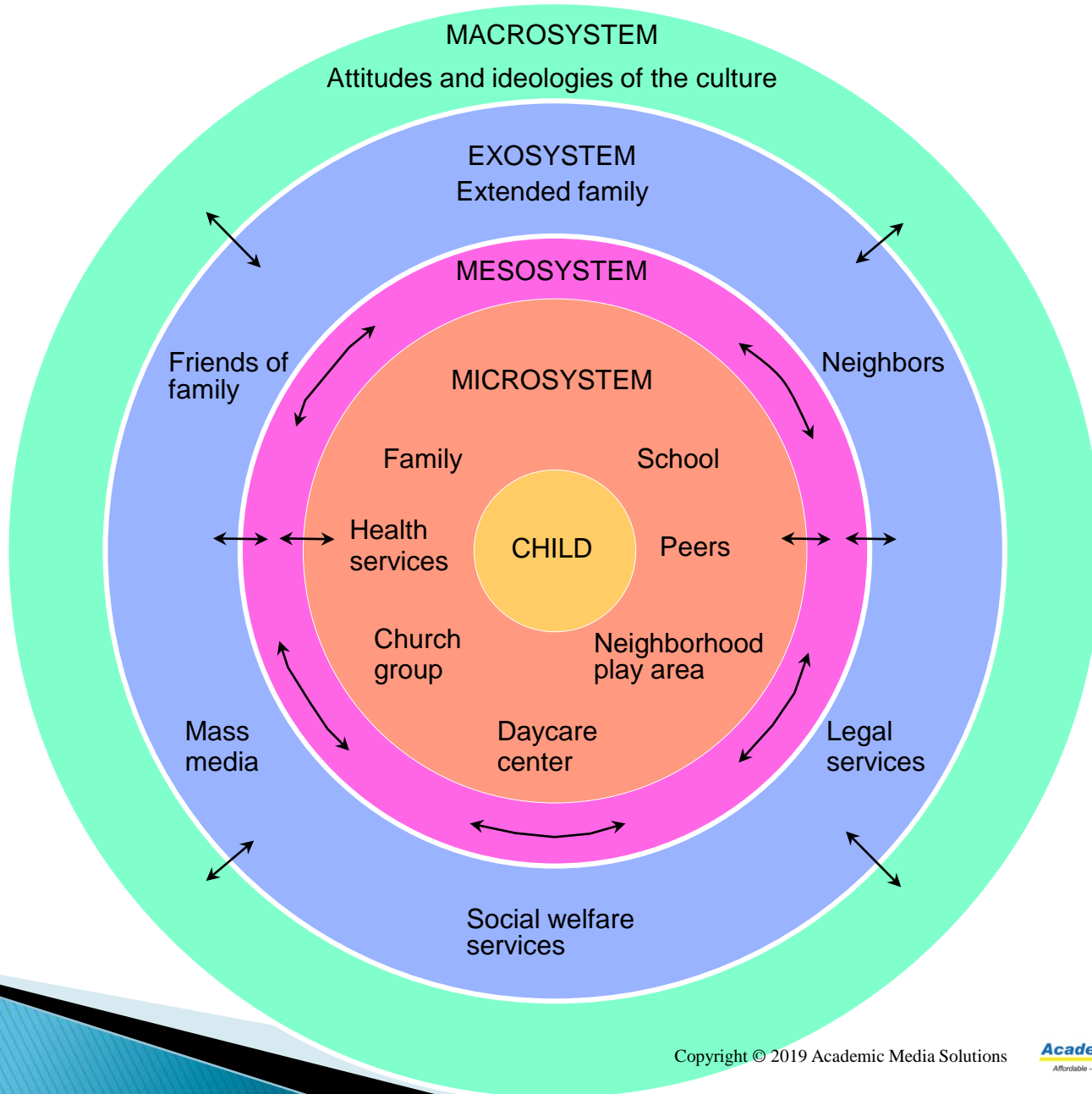
Key: For each age group, the Venn diagram represents the intersection of physical (bottom-left circle), cognitive (bottom-right), and social (top) domains of development.



# Development Is Impacted by Different Ecological Systems



# Bronfenbrenner's Four Ecological Settings for Development Change



# Purpose of Understanding Development?

- ▶ Use observations and experiments to...
- ▶ DESCRIBE
  - What is normal vs. non-normative development?
- ▶ EXPLAIN
  - How does development happen?
- ▶ PREDICT
  - When will an event change development?
- ▶ CONTROL or MODIFY
  - Try to ensure development is not negatively impacted

# Example

- Describe: When do children learn how to walk?
- Explain: How do children learn how to stand and take steps independently?
- Predict: Does the use of bouncy chairs impact when children take their first steps?
- Control or Modify: Can bouncy chairs be used to strengthen leg muscles and assist children who are delayed in walking?



# What Kinds of Questions Do Developmental Psychologists Ask?

# Perspectives on Human Development

Issue	Key Question
Continuity within change	How do we account for underlying continuity in qualities, behaviors, and skills in spite of apparent change?
Lifelong growth	What is the potential for growth—emotional, cognitive, and physical—throughout the lifespan?
Changing meanings and vantage points	How do key life events change in meaning across the lifespan and as a result of changing roles and experiences?
Development diversity	What factors create differences in individuals' development across the lifespan?

# Scientific Method

- ▶ Focus on a topic—make careful observations and review literature.
- ▶ Formulate a hypothesis.
- ▶ Test the hypothesis via:
  - Laboratory experiments, which include
    - Operational definitions
    - Control groups
    - Cross-sectional, longitudinal, or sequential design
  - Naturalistic studies
  - Surveys
  - Interviews
  - Case Studies
  - Correlational Studies
- ▶ Collect and analyze data
- ▶ Draw conclusions
- ▶ Make results available

# Advantages and Disadvantages of Information-Gathering Approaches

Design	Description	Advantages	Disadvantages
<b>Naturalistic Observations</b>	Observations of behaviors as they occur in children's real-life environments.	Can note antecedents and consequences of behaviors; see real-life behaviors.	Possibility of participant reactivity and observer bias; less control over variables; cause-and-effect relationships difficult to establish.
<b>Structured Observations</b>	Observations of behaviors in situations constructed by the experimenter.	More control over conditions that elicit behaviors.	Children may not react as they would in real life.
<b>Interviews and Questionnaires</b>	Asking children (or parents) about what they know or how they behave.	Quick way to assess children's knowledge or reports of their behaviors.	Children may not always respond truthfully or accurately; systematic comparisons of responses may be difficult; theoretical orientation of researcher and interpretations of answers.
<b>Meta-analytic Studies</b>	Statistical analysis of other researchers' findings to look for the size of a variable's effects.	Pool a large body of research findings to sort out conflicting findings; no participants are observed.	Requires careful mathematical computation; variables may not have been defined identically across all studies.

# Strengths and Weaknesses of Research Designs

Design	Description	Strengths	Weaknesses
<b>Correlational Design</b>	Researcher sees if changes in one variable are accompanied by systematic changes in another variable.	Useful when conditions do not permit the manipulation of variables.	Cannot determine cause-and-effect relationships.
<b>Experimental Design</b>	Researcher manipulates one of more independent variables to observe the effects on the dependent variable(s).	Can isolate cause-and-effect relationships.	May not yield information about real-life behaviors.
<b>Field Experiment</b>	Experiment conducted in real-life, naturalistic settings.	Can isolate cause-and-effect relationships; behaviors are observed in natural settings.	Less control over treatment conditions.
<b>Quasi-experiment</b>	Assignment of participants to groups is determined by their natural experiences	Takes advantage of natural separation of children into groups.	Factors other than independent variables may be causing results.
<b>Case Study Design</b>	In-depth observation of one or a few children over a period of time.	Do not require large pool of participants.	Ability to generalize to the larger population may be limited.

# Strategies for Assessing Developmental Change

Approach	Description	Advantages	Disadvantages
<b>Longitudinal Study</b>	Repeated testing of the same group of children over an extended period of time.	Can examine the stability of characteristics.	Requires a significant investment of time and resources; problems with participant attrition; can have age-history confound.
<b>Cross-Sectional Study</b>	Comparison of children of different ages at the same point in time.	Requires less time; less costly than longitudinal study.	Cannot study individual patterns of development or the stability of traits; subject to cohort effects.
<b>Sequential Study</b>	Observation of children of two or more different ages over a shorter period of time when in longitudinal studies.	Combines the advantages of both longitudinal and cross-sectional approaches; can obtain information about stability of traits in a short period of time.	Has same problems as longitudinal studies; but to a lesser degree.

# Correlations

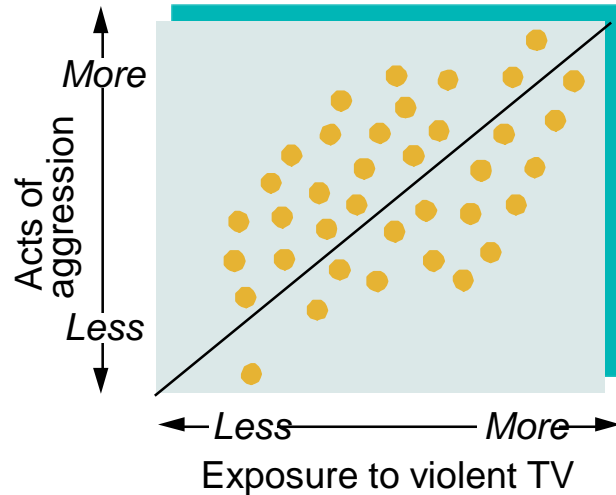
- ▶ Help us understand how variables are related.
  - Describe
- ▶ Does NOT tell us about cause and effect
- ▶ Correlation coefficient ( $r$ ) tells us two things:
  - The direction of the correlation (positive/negative)
  - The strength of the correlation (between 0 and 1.0)

# Try It!

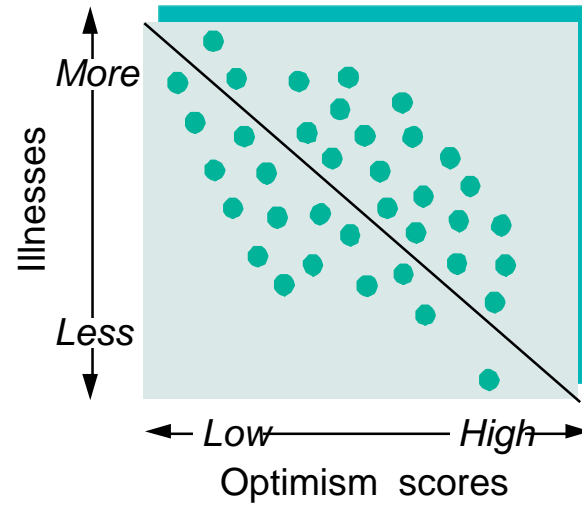
- ▶ Which of the following correlation coefficients is the STRONGEST?
  - A.  $r = +0.7$
  - B.  $r = -0.94$
  - C.  $r = +1.84$
  - D.  $r = -0.12$



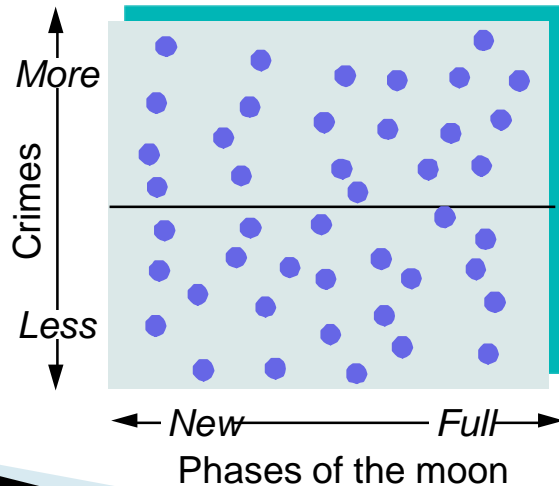
## POSITIVE CORRELATION



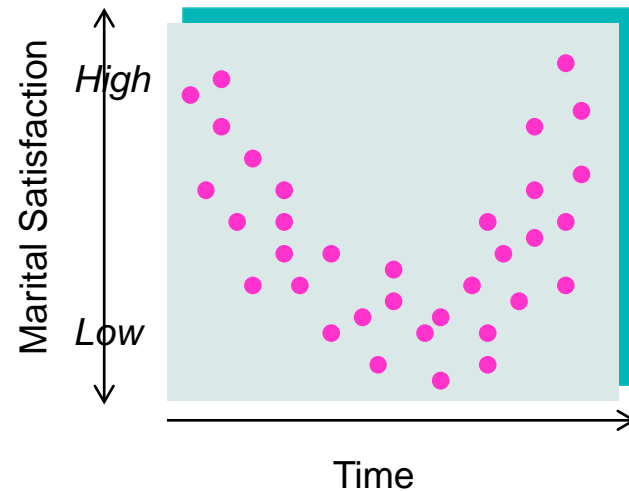
## NEGATIVE CORRELATION



## ZERO CORRELATION



## CURVILINEAR CORRELATION



# Try It!

- ▶ What is an example of two variables that would be...
  - Positively correlated
  - Negatively correlated
  - Not (zero) correlated
  - Curvilinearly correlated

# In Order to Explain Cause and Effect and Predict, We Need to Use Experimental Methods

# Experiments

- ▶ Random selection from population
  - So that our sample is representative of the population
- ▶ Random assignment into groups
  - So that our groups are approximately equal and we can assume any differences are due to our “cause”
    - Experimental group—gets levels of treatment
    - Control group—gets no treatment or placebo

# Dependent and Independent Variables

$$Y = f_x(x_1, x_2, x_3, \dots x_n)$$

Y is the dependent variable or what we think is the effect  
(such as test scores, number of errors, speed, muscle contractions, aggressive acts, etc.)

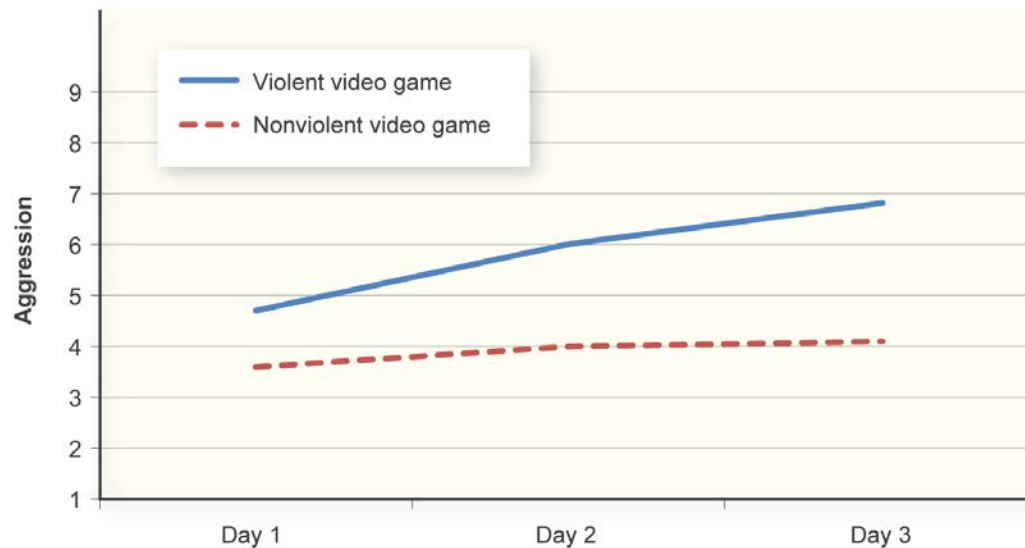
Xs are independent variables or what we think is the cause  
(such as age, sex, drug, intelligence, etc., and the experimental treatment)

# Experiment

- ▶ Independent variable (X; cause; what the experimenter manipulates)
- ▶ Dependent variable (Y; effect; what the experimenter measures)

# Experiment

- ▶ Participants played videogames for 20 min on 3 days
  - Violent game or Nonviolent game
- ▶ Measure how aggressive participants were
- ▶ What is the independent variable? Control group? Experimental group? What is the dependent variable?



# Try It!

- ▶ Guillermo found a positive correlation between the temperature in class and the number of times students sigh.
- ▶ How can Guillermo use an experiment to test whether class temperature causes sighing?
  - Independent variable? Levels?
  - Dependent variable?



# Ethical Constraints on Studying Child Development

- ▶ Confidentiality
- ▶ Full disclosure of purposes
- ▶ Respect for children's and parents' freedom to participate
- ▶ Informed consent
- ▶ In loco parentis

# Focusing Questions

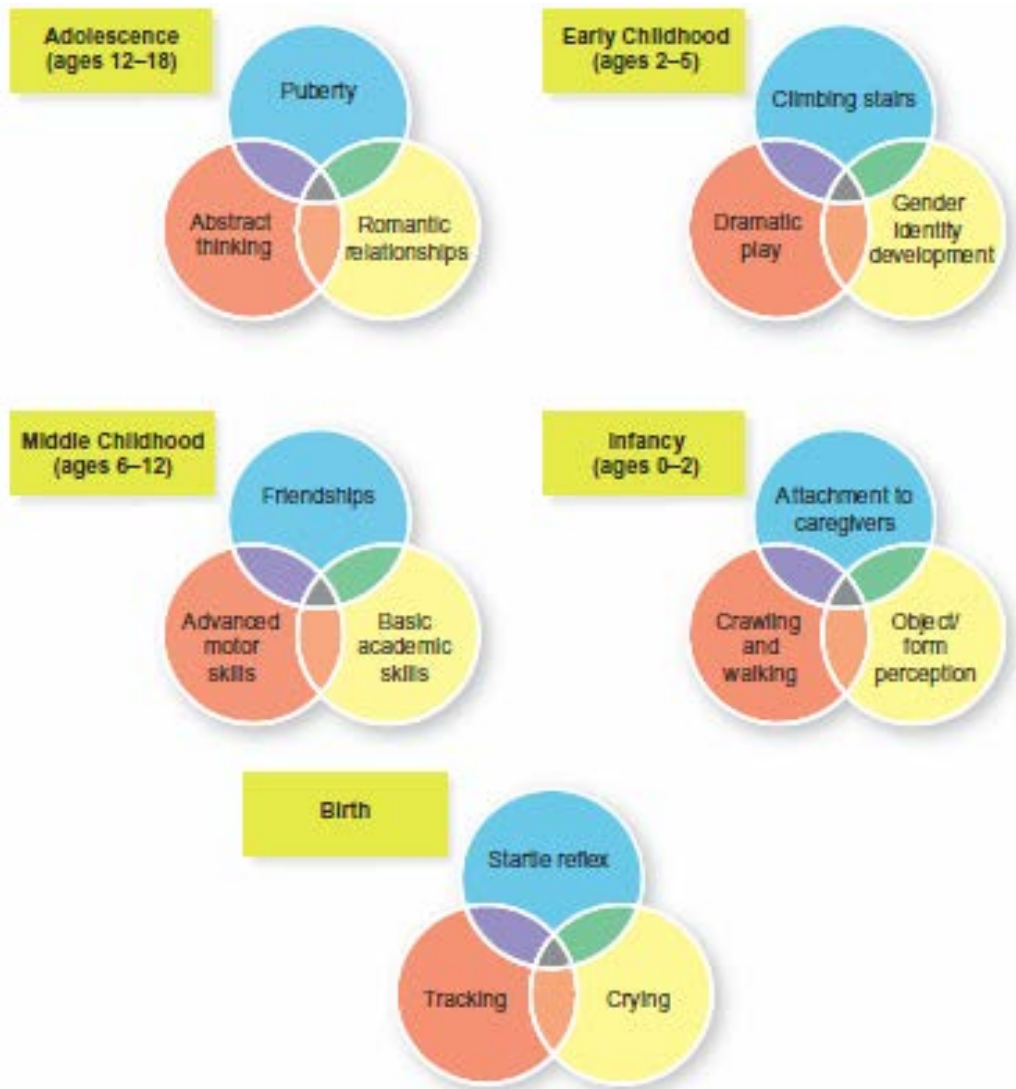
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# Chapter 1

## Figures and Tables

## FIGURE 1.1 Selected Landmarks of Development

Development is a continual unfolding and integration of changes in all domains, from birth until death. Changes in one domain often affect those in another domain, and changes that occur in earlier stages of life can influence those that occur during later stages.

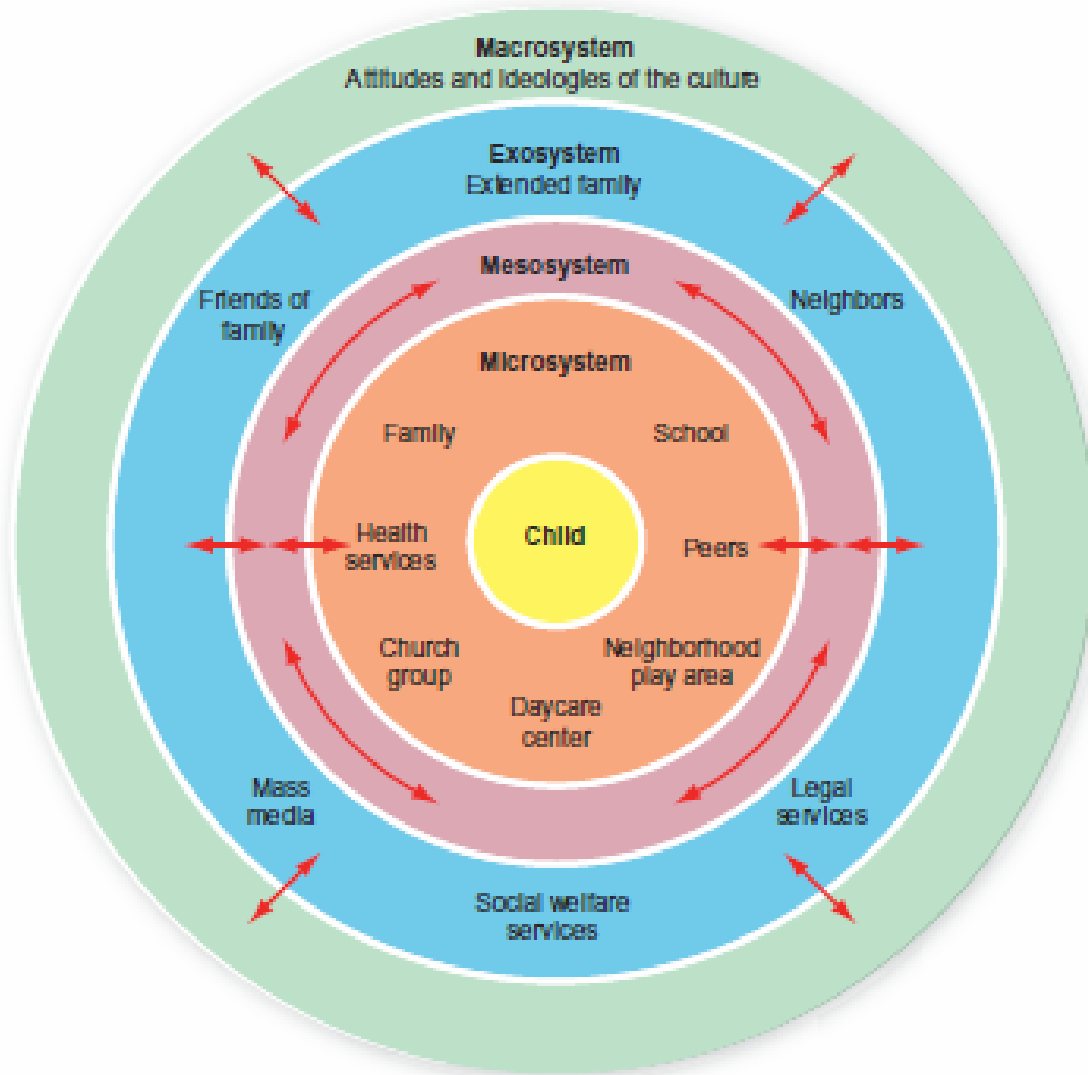


Key: For each age group, the Venn diagram represents the intersection of physical (bottom-left circle), cognitive (bottom-right), and social (top) domains of development.



**FIGURE 1.2**  
Bronfenbrenner's  
Ecological Systems for  
Developmental Change

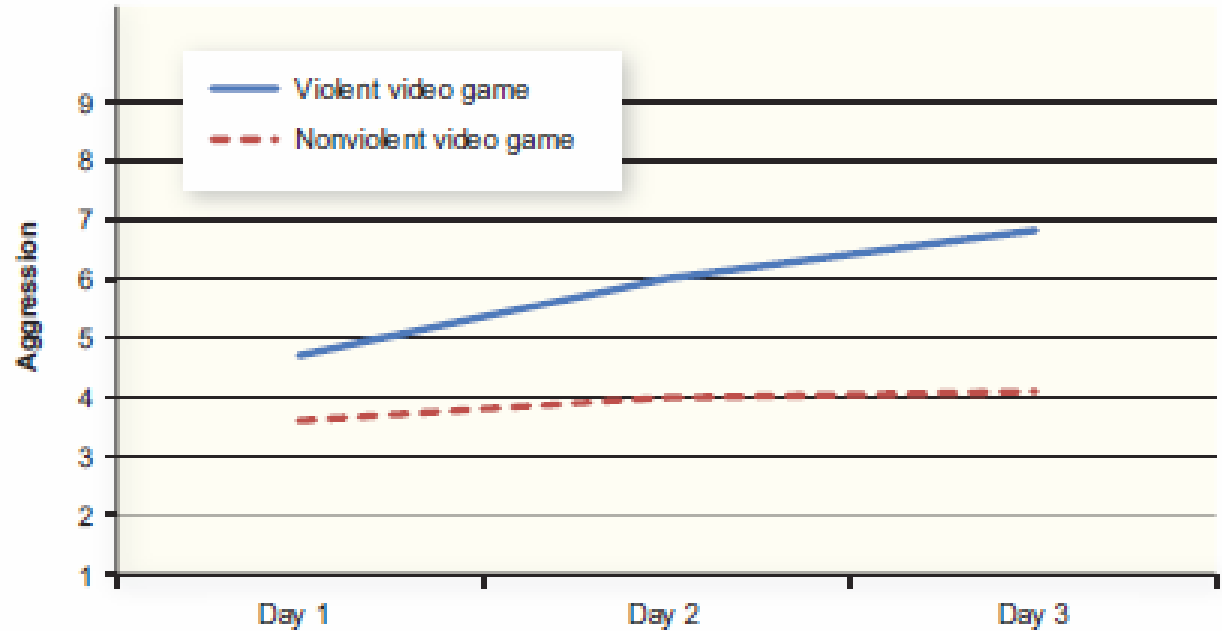
As shown here, Bronfenbrenner describes human development as a set of overlapping ecological systems. All of these systems operate together to influence what a person becomes as he or she grows older. In this sense, development is not exclusively "in" the person but is also "in" the person's environment. In addition to the systems pictured here, a fifth system, the *chronosystem*, refers to changes in the ecological systems over a person's lifetime and over the course of human history. Source: Adapted from Garbarino (1992a).



**FIGURE 1.3**  
Effects of Violent and  
Nonviolent Video Games  
on Aggression over Time

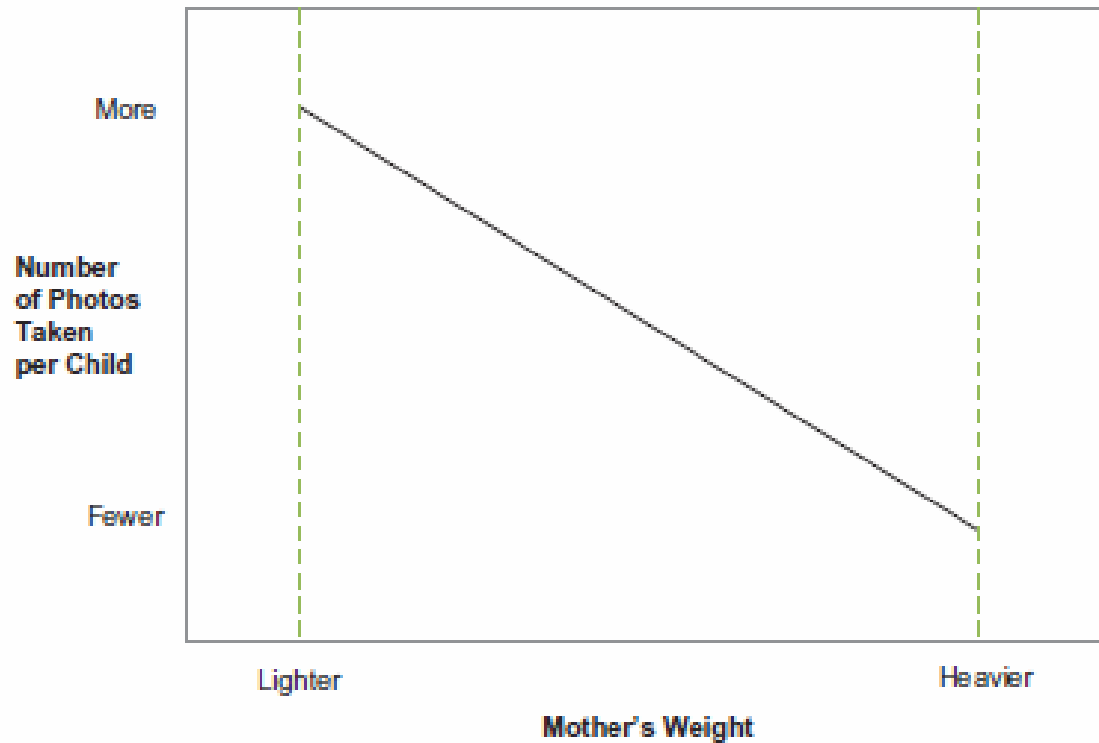
Exposure to video games for 20 minutes during three consecutive days resulted in significantly higher rates of aggression in college students who played violent video games compared to those who played nonviolent video games.

Source: Adapted from Hasan, Bègue, Scharkow, and Bushman (2013).



**FIGURE 1.4**  
Correlation Is Not  
Causation

The number of pictures taken of an infant correlates with the weight of the child's mother, with heavier mothers taking fewer pictures. But this does not mean that gaining weight causes mothers to stop taking pictures or that taking pictures causes mothers to gain weight. More likely a third factor, such as the number of previous children to whom the mother has given birth, causes both factors separately.



**TABLE 1.1 Ecological System Levels**

Ecological Level	Definition	Examples	Issues Affecting the Individual
Microsystem	Situations in which the person has face-to-face contact with influential others	Family, school, peer group, church, workplace	<p>Is the person regarded positively?</p> <p>Is the person accepted?</p> <p>Is the person reinforced for competent behavior?</p> <p>Is the person exposed to enough diversity in roles and relationships?</p> <p>Is the person given an active role in reciprocal relationships?</p>
Mesosystem	Relationships between microsystems; the connections between situations	Home–school, workplace–family, school–neighborhood	<p>Do settings respect each other?</p> <p>Do settings present basic consistency in values?</p>
Exosystem	Settings in which the person does not participate but in which significant decisions are made affecting the individuals who do interact directly with the person	Spouse's place of employment, local school board, local government	<p>Are decisions made with the interests of the person in mind?</p> <p>How well do social supports for families balance stresses for parents?</p>
Macrosystem	"Blueprints" for defining and organizing the institutional life of the society	Ideology, social policy, shared assumptions about human nature, the "social contract"	<p>Are some groups valued at the expense of others (e.g., sexism, racism)?</p> <p>Is there an individualistic or a collectivistic orientation?</p> <p>Is violence a norm?</p>
Chronosystem	Changes in all of the ecological systems over the course of a person's development and over the course of human history.	The developmental impact of certain events will vary depending upon their timing during one's development, and elements of the ecological systems can change from one generation to the next.	<p>What elements of the ecological systems are most impactful on an individual's development, given that individual's age?</p> <p>What factors will greatly influence the development of children born in 2015? How do those factors compare to ones that were present in 1990?</p>





**TABLE 1.2 Perspectives on Human Development**

Issue	Key Question
Continuity within change	How do we account for underlying continuity in qualities, behaviors, and skills in spite of apparent change?
Lifelong growth	What is the potential for growth—emotionally, cognitively, socially, and physically?
Changing meanings and vantage points	How do key life events change in meaning throughout childhood and adolescence and as a result of changing roles and experiences?
Developmental diversity	What factors create differences in individuals' development?

**TABLE 1.3** Methods of Studying Human Development

Research Question	Method	Description
<i>Question about Causality</i>	Experimental study	Observes persons where circumstances are carefully controlled so that just one factor varies at a time
	Cross-sectional study	Observes persons of different ages at one point in time
	Longitudinal study	Observes same group(s) of persons at different points in time
	Sequential studies	Observes persons from different cohorts at the same <i>and</i> different points in time.
<i>Question about Association</i>	Naturalistic study	Observes persons in naturally occurring situations or circumstances
	Correlational study	Observes tendency of two behaviors or qualities of a person to occur or vary together; measures this tendency statistically
	Survey	Brief, structured interview or questionnaire about specific beliefs or behaviors of large numbers of persons
	Interview	Face-to-face conversation used to gather complex information from individuals
	Case study	Investigation of just one individual or a small number of individuals using a variety of sources of information